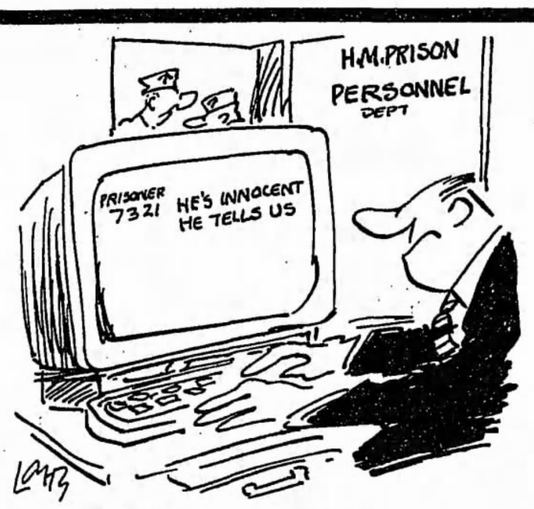
Ralph Cornes on why Information Management doesn't work and the Data Protection Act is wasted

The Smiley's Circus of unsecret files



IT IS 10 or 15 years since the emphasis in commercial computing changed from the processing of data to the provision of information, with the change marked by a change in vocabulary. Data Processing (DP) departments became Management Information Service (MIS) departments, consultants began to talk about information as an Asset and glossy journals started printing articles about The Information Society. Considering all the noise and column inches, it is rather surprising that no one has bothered to define it.

It is not defined by consultants who write reports about the advantages of information management and the costs of not having it, nor by the DP manager who is setting up an information centre. Nor, incidentally, is it defined by the Data Protection Act which seems to assume that data and information are the same — a bit like saying the works of Shakespeare and the OED are the same because the words of one are found in the other.

Nobody bothers to define information because everybody assumes he or she knows what it is — the stuff you find on messages and keep in files. So all assume they are managing information by managing the messages and the files. They are wrong.

The important consequence of the lack of a definition is that we cannot even begin to develop answers to the two main questions about information that are too important to be left to the IT technicians and the administrators. Namely, who owns a particular piece of information, and what are the right and proper limits for its use.

The basic premise of Information Management and the Information Society is that information originally gathered for one purpose can be used for lots of other purposes. This has obvious advantages. Additional applications cost nothing except the cost of development. There is also an enormous administrative bonus in having everyone operating on the same information instead of the incompatible information which historically they have all individually compiled.

Finally, solutions to knotty problems often become apparent as a result of new insights, when it becomes possible to associate information in one massive database (DB) with that in another.

The drawbacks are equally obvious. Some information is private and confidential to a person, section or department. A personnel DB could contain details of health history, salary and references provided. The payroll, personnel and medical departments all have the right to access some of these details, and must be prevented from accessing others.

More difficult still, the personnel department might have need to access medical details to plan a company scheme for sick pay and convalescent leave, but it might have no right to use or even subsequently to remember the same details for other purposes. Similarly, trades unions often oppose the use of shop-floor feedback information on production to monitor the performance of their members. The question is: Who can use what information for what purpose?

Information is a collection of information elements which by accident, design, or history, happen to find themselves on the same message or in the same file. An information element is the smallest collection of data elements which have a meaning; it consists of a minimum of an indicative data element, and a quantitative data or logical indicator data element (e.g., male/female), and usually an implicit unit-of-measure date element. The questions of the ownership and the proper use of information have to be addressed at the level of the information element and not at the level of the file — as was the case with Smiley's Circus.

In a census return you might be embarrassed to be named as the occupant of a house without a bathroom. But if it were impossible to associate your name or address with this information, the information element that a household had no bath might safely be made available to all enquirers.

On the other hand, you might not be embarrassed to have your name associated with a length of residence in the same address. It is neither the census file nor the data element which needs to be managed, but every possible information element which can be derived or deduced from the data elements in the census file.

Information management in business, however, is invariably tackled at the level of the file. Ownership of all the information on a file is generally vested with the originator so that the question of its proper use never arises. The originator can use it for everything, and nobody else can use it for anything without permission, again as in Smiley's Circus. Effectively, the IT technician has decided not to allow information management into the organisation.

Until the ownership and proper use of information are decided at the level of the information element, any higher form of information management and most legislation on security and privacy is wasted. The Data Protection Act, for instance, gives you the right to check your record on any machine-readable DB. You must not, however, ask how you are supposed to know that it is there in the first place; nor what to do if it not there and you suffer damage by *absence* — say from a file of credit-ratings

Once information ownership and its proper use are addressed at the level of the information element it is possible to see a structure for the mechanics of information management. An information directory of all information elements could contain the owner's ID and the access code required for non-owner use. An information system could then provide general and ad hoc information without destroying the basis of privacy and security of information.

Who should decide these parameters is not an IT decision. The same control mechanism, with different parameters, will serve equally a decentralised plutocracy or a centralised bureaucracy, a dictatorship as well as a democracy. However, it is important to have some debate, for within five years most of us will be going onto some DB or other 10 or 15 times a week — and many of us would like some control over the use made of the information generated by our activities.

Modern menaces attack authority with computers and their mis-users guide. Simon Sheppard reports

When hacking turns to anarchy

ANARCHY seems to be growing in popularity. Look in any "alternative" bookshop and you will find an assortment of anarchist literature from an ever-changing body of titles such as Class War, Stuff It and The Brighton Bomber. Some of todays anarchists, able to transcend the mere chant of "Smash the State," are turning their attention to computers.

Now available in Britain are copies of the American Hackers' newsletter *2600* — by far the most direct and single-minded computer anarchist publication. The latest issue, for example, features an extensive treatise on "Violating a Vax."

The article includes examples of many of the techniques available to the computer anarchist. Most extensively discussed is the method known as the Trojan Horse, by which an unobtrusive program is slipped into the files of a user who has access to system privileges. If the code is placed in a log-in file, for example, the hidden code is run when the unwitting user next gains access to the system. The Trojan Horse masquerades as part of the log-in procedure and executes to grant special privileges to another less privileged user. It then deletes itself to remove all trace of the alterations made.

The largest problem with this method is actually installing the "horse," though in all but a handful of systems this may not pose any real difficulty. A refinement of the technique is to merely install a pointer to the illicit code, or to tuck the code away in compiled, machine language form complete with an unobtrusive sounding name. Both ploys make chance discovery of the Trojan Horse less likely.

A rather more direct technique for gaining unrestricted access to a computer system is to employ a Password Grabber to simulate the log-in procedure on an unattended terminal. To quote *2600*, the "unsuspecting dope then enters his username and password which are then written to some useful location for later retrieval."

The Password Grabber may deceive the "dope" that some mythical error has occurred, or continues to operate, passing each command directly to the operating system. In either case the bonafide user remains completely unaware that his every movement is being monitored by an alien program.

The full might of the computer anarchists' arsenal becomes apparent with the outbreak of a virus, alternatively known as a worm. The main purpose of most strains of virus (*2600* includes a fully worked example written in VAX/VMS) is to replicate themselves. The virus becomes a monster, ever growing in size, consuming large amounts of disc space and taking increasingly greedy gulps of processing power. Viruses may also be programmed to try to infect other computer systems connected to the host computer through networks.

In the words of the newsletter's anonymous writer: "A good virus does something slightly more interesting, like plant a small bomb in the system to go off after some time period or after some event occurs, or burn a hole somewhere so that a certain command will do something else, or insure that a certain username will always work or dedicate all system resources to calculating the millionth digit of pi — you get the idea. It can do anything".

Another article covered the Pick operating system. Pick is growing in popularity as a multi-user system suited to data retrieval applications, but it is almost embarrassingly easy to hack. Details were given on how to break into the system in order to peruse data, how to crash the system and how to "destroy and render useless" an entire Pick data bank with a simple one-line command. It seems that, in their current state of development, many multi-user operating systems are highly insecure and extremely vulnerable.

The newsletter also covers "phone phreaking," or subverting digital telephone networks. However, the information is not relevant here as much of the British phone system is made up of old Strowger mechanical relays. Telephone hackers in the UK have to be content with a circuit published in censored form in the relatively tame Hackers' Handbook.

It is unusual to see an expression of the motives of the new-age anarchists in their publications devoted to technology. The political motivation is normally assumed from the mainstream anarchist press, from Stuff It's "The single most obvious emotion in the anarchist press is anger" to the classic Class War piece "Why I Hate The Rich."

While the motives of the leather-clad anarchist can be difficult to define, those of the technological variety are more straightforward. The overwhelming motivation of the computer anarchist is to see egg on the face of authority.

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